RIETI Policy Symposium: Japan’s Pension System
Evaluating the 2004 Reform and Establishing Clear Principles for Further Reforms

Establishing Principles for a More Sustainable Pension System in Japan, and Identifying Challenges

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Purpose

- Evaluating some pension reform plan based on clear principle for making Japanese complex pension system sustainable
- Developing new pension simulation model
- Quantitative analysis on the pension reform plan which is impossible for existing pension simulation models to estimate.

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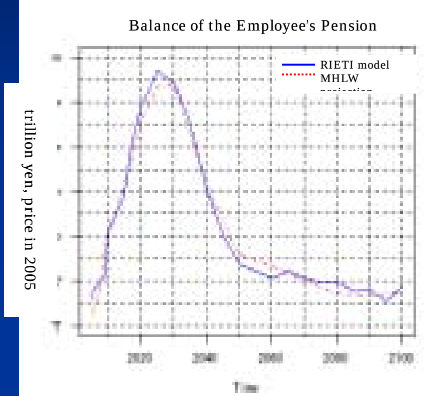
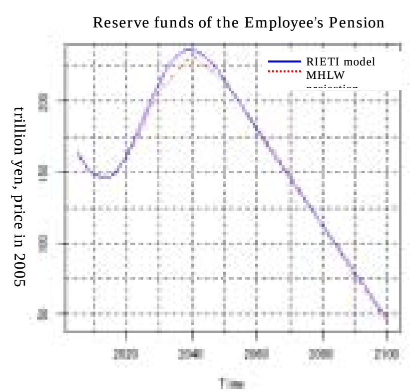
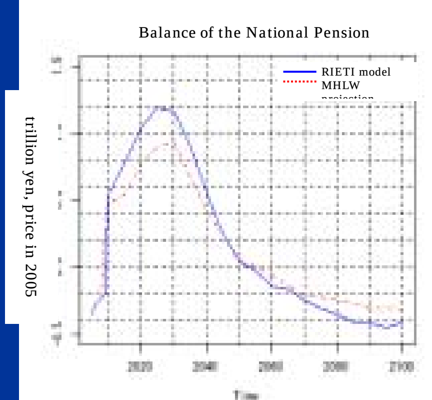
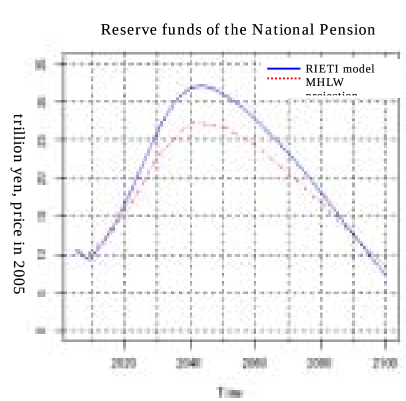
RIETI Pension Simulation Model









- RIETI model is designed by the authors' research group with the objective of performing pension finances calculations that are necessary for drafting any reform of the Japanese public pension system.
- Calculation results are similar to those of the recalculation of finances by the MHLW under the same economic assumptions.
- The following simulation results are calculated by using the codes of this RIETI model.

Pension Reform 2004

- Step-by-step increase and putting cap of pension contribution
  - Employees Pension FY2004:13.58%〜after FY2017:18.3%
  - National Pension FY2004:¥13,300〜after FY2017:¥16,900
- Control of increase of pension benefit by “Macroeconomic Slide”
  - Slide rate will be lower by (until FY2023)
    - Decreasing rate of insured person of public pension (about 0.6%)(for low birth rate)
    - Extension of the life expectancy (about 0.3%)(for aging population)
- Drawing down accumulated reserve funds
  - Accumulated reserve fund over 5 year’ worth of benefit → Reducing fund over 1 year’s worth of benefit in FY2100 (Reserve Ratio =1)
- Increasing national government subsidy rate for basic pension benefit from 1/3 to 1/2 by FY2009

Divided Assessment for 2004 Reform

- Capping on the contributions and controlling the benefits within the revenues and national subsidy → more sustainable pension finance
- Divided assessment
  - Approval for direction of the reform: Hori(2005),Oshio(2005) etc..
  - Critique for structural problem inherent in current system: Takayama(2004) etc..
- Why are these opinions split over?
  - The current pension system is complicated and hard to understand. It is difficult to grasp with clarity exactly what has been improved and which problems remain to be addressed following the 2004 reform package.

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A History of the Pension System Ⅰ

- FY1942: Foundation of Employee's Pension System
  - Full funded system (earnings-related benefit)
    →the value of reserves was rendered zero after WW2
- FY1954:Employee's Pension Insurance Law was enacted after FY1948's emergency measures.
  - First-tier: fixed-amount benefit、second tire: earnings-related benefit、and step-wise contribution system
- FY1961: Foundation of National Pension System
  - If both the husband and wife subscribed to the fixed-contribution national pension system they would receive about the same amount of pension as an average male employees' pension recipient
- Centered on the years following 1965, pension benefits were raised significantly
  - Premium rate were also raised progressively, albeit slowly
- Unbalance between benefits and contributions was aggravated.
  - the system gradually changed into what is practically a PAYGO system
  - According to the recalculation of pension finances conducted in 1980, it was projected that the employees' pension premium rate would have to be raised to 34.9% after 2020 (as opposed to the male rate of 10.6% and the female rate of 8.9% at that time)

A History of the Pension System Ⅱ

- In particular, in the case of the national pension system, the imbalance was more significant than in the employees' pension system. Due to long-term changes in the employment structure, increase of pensioner support ratio would make it difficult for the national pension system to be run independently.
- FY1985: Introducing Basic Pension System
  - The introduction has changed the nature of the national pension system as a fixed pension system that secures the basics of a livelihood in old age.
    →the basic scheme of the original system, which the national pension benefits for a couple would approximately equal the benefit of an average male employees' pension recipient, has been changed.
- Very complicated relationship between the contributions and benefits
  - While beneficiaries of the employees' pension system contribute premiums at a fixed rate relative to their salary, beneficiaries of the national pension system continue to pay a fixed-amount regardless of income.
  - The introduction of the insurance system for Category-3 insured
  - When calculating the contribution ratio for the basic pension system, the total amount of contributions is divided by the number of the people insured excluding those who are not paying premiums or are exempted from paying premiums. As the ratios of people not paying premiums or exempted from payment increase, the contribution ratios of the other systems also increases.
- After that, a number of measures have been implemented, but the basic framework for the system has remained unchanged since it was reformed in 1985.

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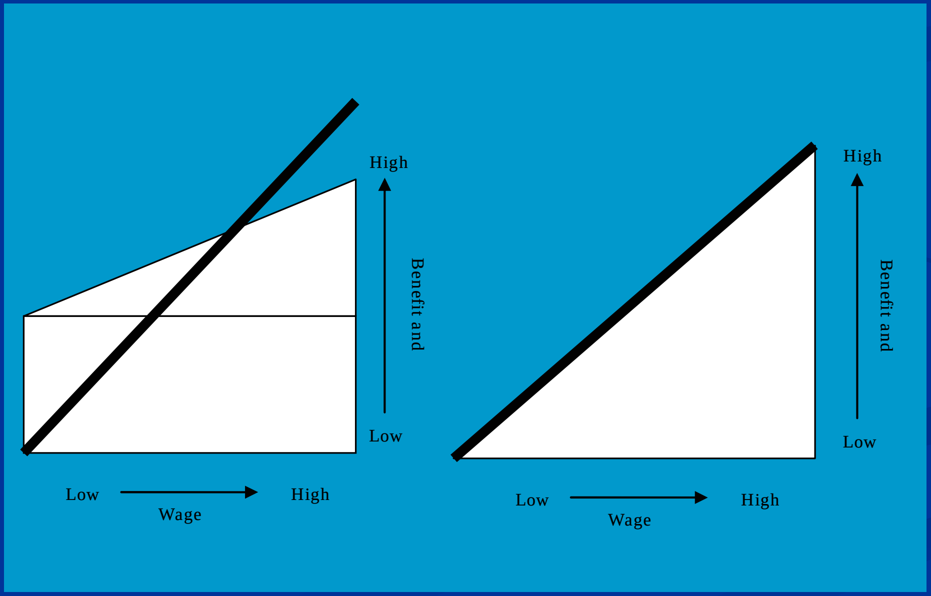
Benefits and Contributions in Pension System

- Early employee's pension: Earnings-related benefit (Full Funded System)
  - One to one correspondence between benefits and contributions
- New employee's pension: two-tire structure
  - Function of redistribution of income within the system
  - After introducing the Basic Pension System, redistribution function has been more complex.



Principle of Pension System

- The reason why the redistribution of income is justified is that the pension system's operation is based on the social insurance method.
- If the pension system were to adhere exclusively to the insurance principle any income redistribution other than that based on the insurance technique would not be allowed. But the social insurance method provides livelihood security for the low-income insured by activating the assistance principle.

	Insurance principle	Assistance principle
Redistribution of income	Redistribution of income based on the insurance technique	One-way transfer of income not based on the insurance technique
Equivalent rule between benefits and contributions	Applicable (compensatory, equivalence)	Not applicable (non-compensatory, non-equivalence)
Burden rule	Beneficiary-will-contribution principle	According-to-earnings principle
Benefit rule	Benefit-to-those-who-contribute principle	According-to-needs principle

Source: Hori (2005)

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Major Indices Relating to the Current System

- In order to enable a comparison of the current system with our proposal pension reform, we calculate major indices relating to benefits and contributions for individuals (the internal rate of return and contribution/benefit ratio) under the current system.
- <u>Internal rate of return</u>:
  The discount ratio that equalizes the total insurance premiums and the total benefits he or she receives.
- <u>Contribution-benefit ratio</u>:
  A discounted current value of a benefit divided by the discounted current value of the total premiums contributed under a certain discount ratio for an individual.

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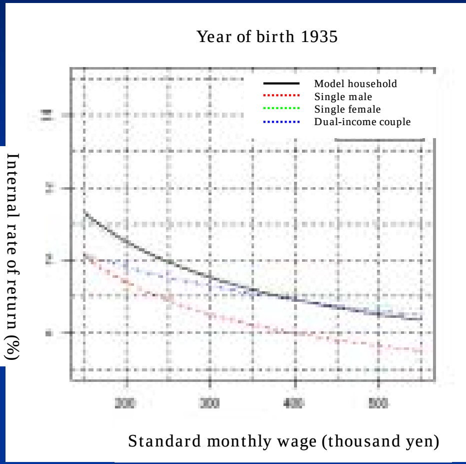
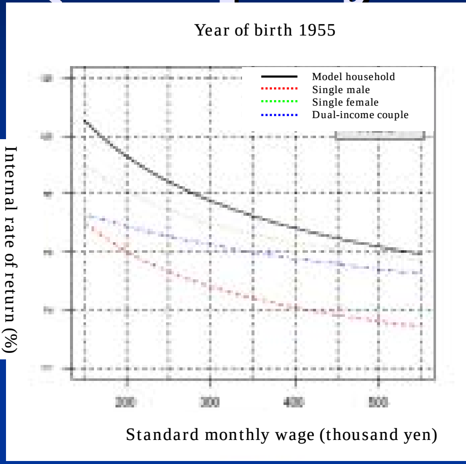
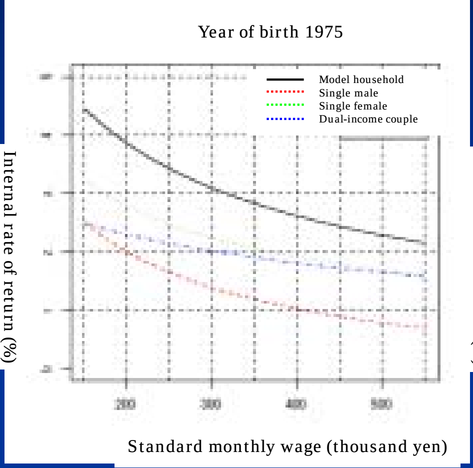
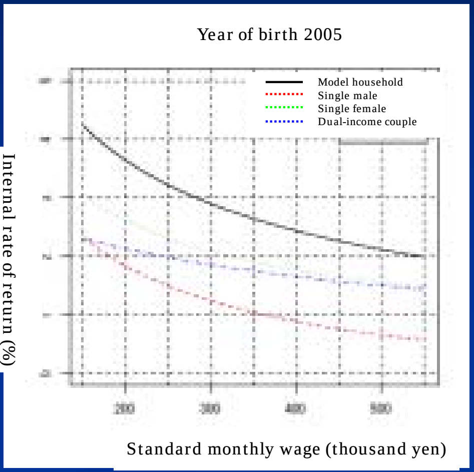
Internal Rate of Return (Employee's Pension)









- The earlier the birth year (i.e., the older the recipient is), the larger the benefit an individual can receive relative to the premiums paid.
- The model household exhibits the highest profitability because the wife can receive a basic pension without having to pay premiums to the national pension system; if the husband dies, she is also eligible for a survivor's pension.
- The difference between the single female and the single male comes from the difference in average life expectancy (approximately five to seven years).
- The decreasing trend of the graph indicates that the fixed-amount benefit of the basic pension portion has the effect of income redistribution.
- Only among the model households and the single-female households does the internal rate of return exceed the wage-increase rate of 2.1% throughout all generations.

Major Indices (National Pension)

- Because the national pension is a fixed-amount burden and fixed-amount benefit system, there is no need to draw a graph as in the case of the employees' pension.
- The difference between the male and female cases derives from the difference in average life expectancy.
- Both the internal rate of return and the benefit/contribution ratio are better than in the case of the employees' pension because the portion of national subsidy in the benefit is 50%, which is larger than in the typical benefit of the employees' pension system.
- Because of this, the internal rate of return exceeds the wage-increase rate of 2.1% throughout all generations.
- As in the case of the employees' pension the earlier the birth year, the higher the profitability.

Birth year	Benefit/contribution ratio		Internal rate of return (%)	
	Male	Female	Male	Female
1935	4.191	5.211	10.100	10.599
1940	2.665	3.316	7.499	8.085
1945	2.012	2.520	5.945	6.556
1950	1.628	2.052	4.950	5.590
1955	1.327	1.679	4.146	4.805
1960	1.145	1.450	3.634	4.303
1965	1.116	1.410	3.538	4.181
1970	1.054	1.332	3.359	4.009
1975	1.034	1.320	3.302	3.971
1980	1.018	1.300	3.255	3.928
1985	1.009	1.288	3.226	3.895
1990	0.984	1.256	3.152	3.821
1995	0.979	1.250	3.138	3.803
2000	0.978	1.248	3.134	3.799
2005	0.978	1.248	3.134	3.799

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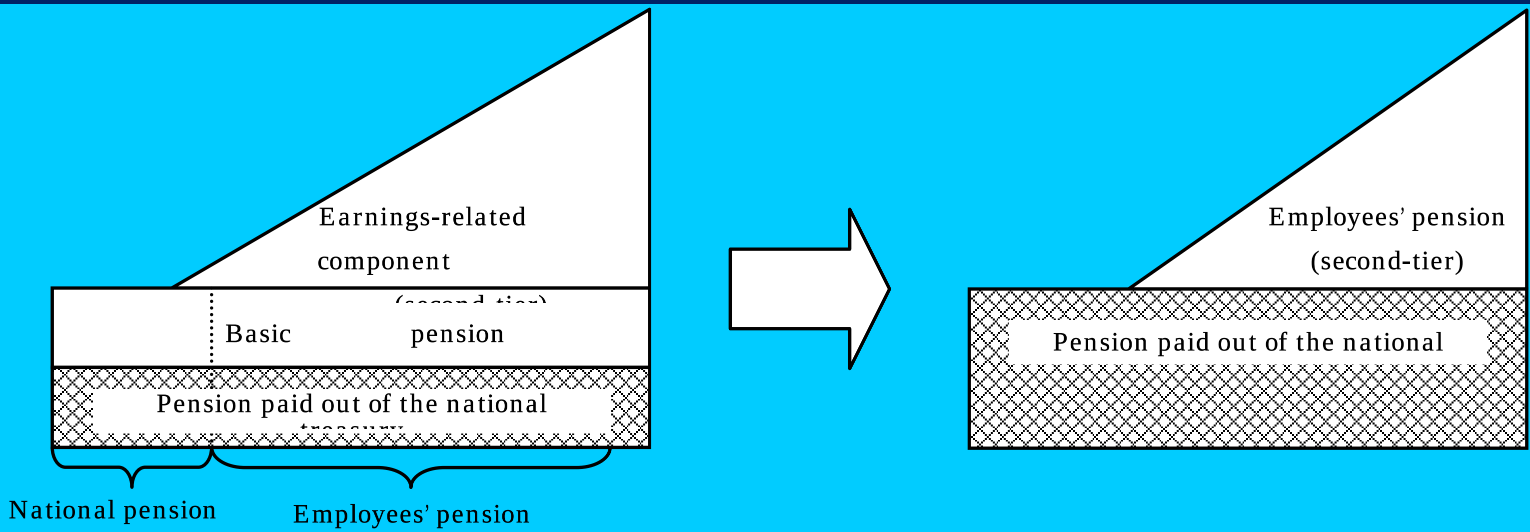
Pension System with Clear Principle Ⅰ

- It is necessary to consider an alternative pension system that combines the advantages of the insurance principle with those of the assistance principle (in other words, the principle of social insurance) in such a way that it is easy for the nation to understand that the principles correspond to the system's constituent elements.
- It is difficult to see how much of the contribution one pays is reflected in the benefits one receives and how much is used in assistance. This is definitely one of the causes of the erosion of trust in the Japanese pension system.
- "The Public Opinion Poll on the Public Pension System" in February 2003, Cabinet Office
  "do you think it is preferable that the relationship between the contributions and benefits of such a scheme is such that the amount of premiums you pay while working is clearly reflected in the amount of pension benefit you receive?"

  <u>"I think so." ：81.1％</u>
  <u>"I don't think so."：7.9％</u>

Ⅰ. Paying Basic Pensions out of The National Treasury



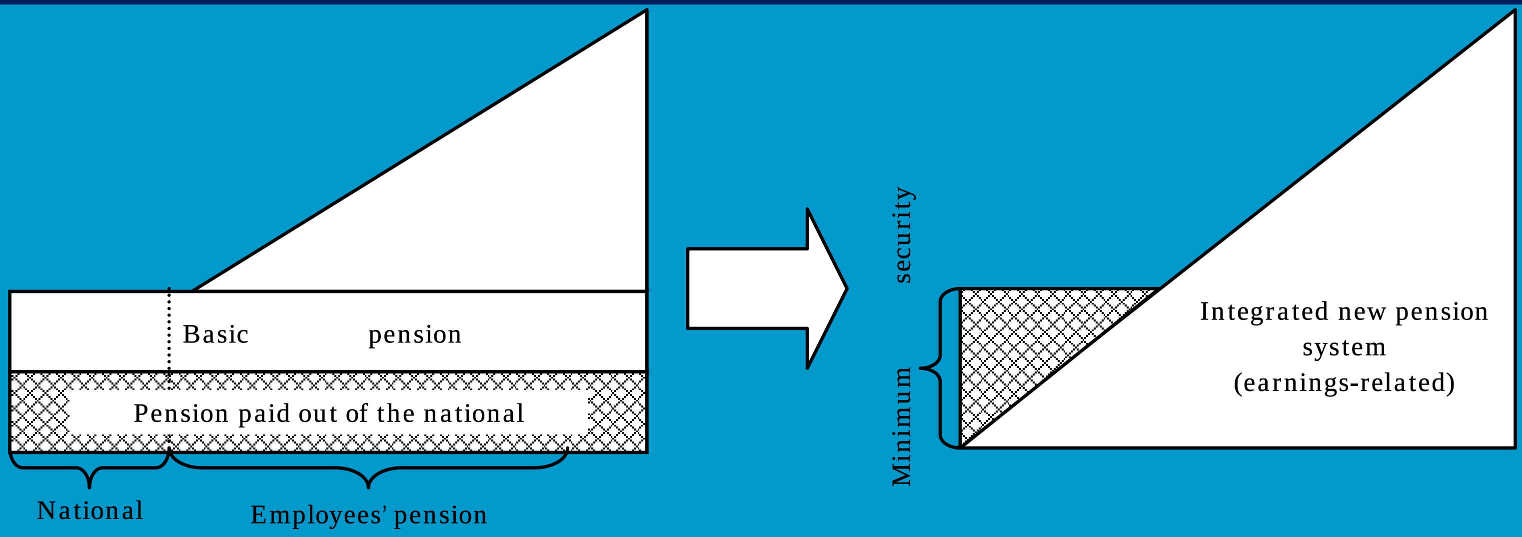
★ 1st-tier : Minimum livelihood security based on the assistance principle. The revenue source from the government's general revenues or collection of taxes for this express purpose

★ 2nd-tier： Earnings-related benefit based on the insurance principle.

- Advantage：
  ⬤Securable for the payment of pensions for the zero-income and low-income layers and for Category-3 insured without altering the current two-tier structure.
  ⬤The assistance principle could be eliminated from the relationship between contributions and benefits under the second-tier premiums and a well-defined benefit scheme based exclusively on the insurance principle could be designed.

- Disadvantage：
  ⬤the burden on the national treasury might prove to be too high because basic pensions based on the assistance principle would also be paid to the high-income layers.

Ⅱ. Integrating The National Pension and Employees' Pension Systems



★ The current national pension and employees' pension systems are integrated into a new pension system based on earnings-related pensions.

★ While minimum security pensions are paid out of the national treasury on the basis of the assistance principle for those recipients who cannot afford to live on their earnings-related pensions alone.

- Advantage:
  ⚪Neutrality to the subscriber's choice of occupation
  ⚪The burden on the national treasury for the payment based on the assistance principle could be maintained at a low level toward the future.

- Disadvantage:
  ⚪Because it would entail a significant change in the current pension system's framework, the costs relating to the transfer to the new system might be prohibitively high.
  ⚪There is a possibility that differences may remain between different industries with respect to their ability to ascertain the incomes of the workers contributing to the pension system.

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Paying Basic Pensions out of the National Treasury

- New system will start in FY2010.
- Reserve ratio in FY2100 is 1.
- Payments for the Basic Pension from the Employee's Pension will be zero. So, we will consider two possibilities;
  - 【Maintaining the Premium Level】
    Adjusting the benefit level with maintaining the contributions schedule of 2004 reform.
  - 【Maintaining the Benefit Level】
    Adjusting the contribution level with marinating the benefit level of current system.
- Estimation of the required tax rate that would need to cover the remaining half basic pension benefits as a pension-purpose consumption tax, and reserve fund (hereafter "basic pension reserve") that would be needed if the burden were to be leveled over the period up to 2100.

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Paying Basic Pensions out of the National Treasury (Maintaining the contribution level)

Benefit multiplier (Figures in parentheses are ratios against current rates 5.481)

	Maintaining the disability/survivors' pensions	Maintaining the disability pension	None
With macroeconomic slide	8.66 (1.58)	10.32 (1.88)	10.45 (1.91)
Without macroeconomic slide	7.57 (1.38)	9.02 (1.64)	9.13 (1.66)

- Benefit Multiplier：The benefit corresponding to the second-tier portion (earnings-related portion) of the employees' pension is calculated by
  an average life-time standard monthly wage
  ✕ the length of time an individual has subscribed to the employees' pension scheme
  ✕ the benefit multiplier.
  So, the benefit multiplier is an index showing what per mill of an individual's yearly income will be incremented over his/her life time as his/her pension benefit if the individual subscribes to the employees' pension system for one year

- If the macro-economic slide were to be put into effect while maintaining the disability pension and survivors' pension within the employees' pension system, a benefit multiplier that is 1.58 times that of the current level would be possible.

- If we were to change the whole structure in such a way that the disability pension and the survivors' pension were paid separately from different revenue, then a benefit multiplier of 10.45, which is 1.91 times that of the current level

- there is a significant difference in the degree of improvement in the benefit multiplier between the case in which the disability pension is removed from the system and the case in which the survivors' pension is removed from the system. This is symbolic of the fact that benefit payments from the current survivors' pension system account for such a large portion of overall pension payments.

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Paying Basic Pensions out of the National Treasury (Maintaining the Contribution Level)

Benefit/contribution ratio and internal rate of return in the second-tier (without disability and survivors' pension component)

Birth year	With macroeconomic slide				Without macroeconomic slide			
	Benefit/ contribution ratio		Internal rate of return (%)		Benefit/ contribution ratio		Internal rate of return (%)	
	Male	Female	Male	Female	Male	Female	Male	Female
1945	1.087	1.362	3.511	4.258	1.034	1.309	3.325	4.117
1950	0.903	1.139	2.844	3.618	0.902	1.142	2.839	3.624
1955	0.756	0.956	2.263	3.061	0.767	0.971	2.315	3.111
1965	0.652	0.824	1.846	2.638	0.664	0.839	1.905	2.691
1975	0.599	0.764	1.619	2.443	0.610	0.778	1.677	2.495
1985	0.577	0.736	1.528	2.351	0.587	0.750	1.585	2.402
1995	0.558	0.712	1.460	2.277	0.568	0.725	1.516	2.327
2005	0.557	0.712	1.458	2.274	0.568	0.725	1.513	2.325

- Contributions and benefits have a one-to-one correspondence, so it is sufficient to calculate only one set of internal rate of return and contribution/benefit ratios for male and female subscribers to the employees' pension of each birth year.
- The case in which the macroeconomic slide is put into effect shows slightly lower benefit/contribution ratios and internal rate of return numbers for younger generations, resulting in wider inequality between the generations.

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Paying Basic Pensions out of the National Treasury (Maintaining the Benefit Level)

Contribution Rate (%) [current: 14.288% after FY2017:18.3%]

	Maintaining the disability/survivors' pensions	Maintaining the disability pension	No disability/survivors' pensions
With macroeconomic slide	11.938	8.688	8.422
Without macroeconomic slide	13.494	10.244	9.998

- We have calculated leveled premium rates up to 2100 instead of using the step-wise premium rates.
- It would be possible to lower the premium rate significantly from the present 14.288%.
- If the structure were to be changed so that the survivors' pension and disability pension were separated and paid from a different revenue source and the employees' pension consisted only of the retirement pension, then the premium rate could be lowered to approximately half of the 18.3%.

Benefit/contribution ratio and internal rate of return for subscribers born in 1995

Macroeconomic slide	Benefit/contribution ratio		Internal rate of return (%)	
	Male	Female	Male	Female
Applicable	0.63	0.81	1.85	2.63
Not applicable	0.62	0.80	1.80	2.58

- significant improvements because the survivors' and disability pensions are separated

Paying Basic Pensions out of the National Treasury (Basic Pension Consumption Rate)

- Under the current system, expenditures relating to the basic pension payments are funded by contributions from the national pension account, employees' pension account, and mutual-aid pension account (currently 1/3 of the necessary amount; from 2009, 1/2).
- Here, we have calculated what the yearly tax rate would be for the year 2010 and after if the basic pension benefit-related expenditures currently drawn from the different pension accounts (i.e., 50% of overall basic pension payments) were all drawn from a revenue source funded entirely by consumption tax.
- The calculations don't take into consideration the effect that increase of consumption tax rate mark up price level. Therefore real benefit level will decrease with increase of consumption tax rate.

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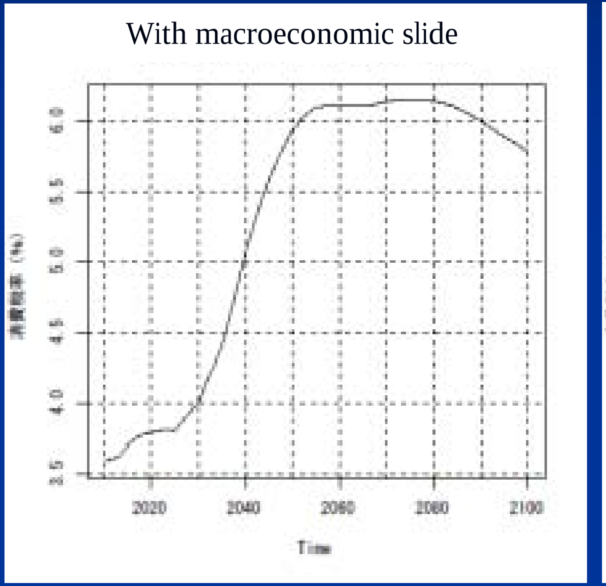
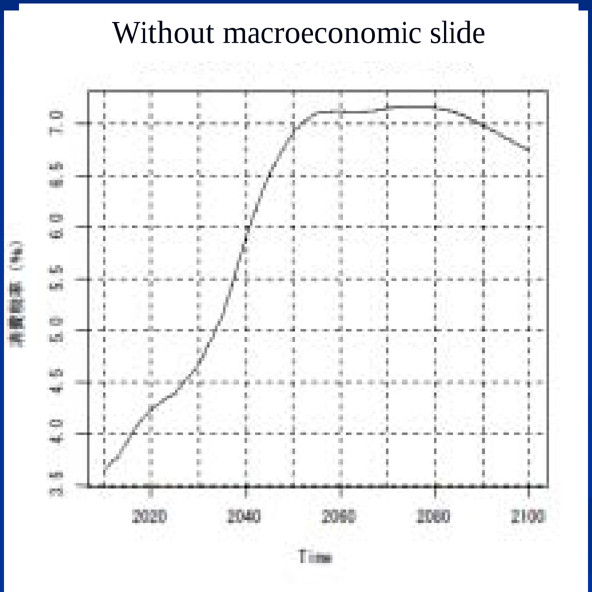
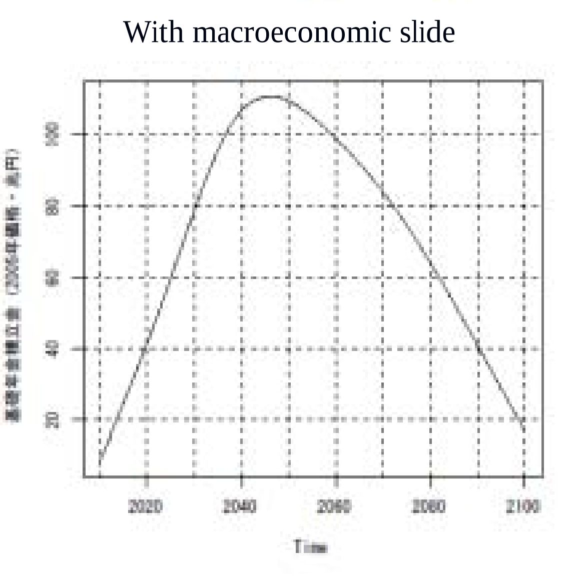
Paying Basic Pensions out of the National Treasury (Basic Pension Consumption Rate)

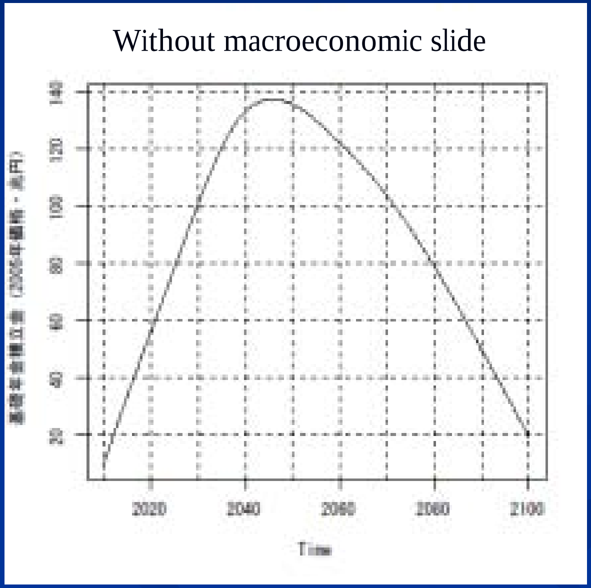




- For the first several years after the reform is implemented, a consumption tax rate of less than 4% can cover the necessary expenditures, but from 2030 on the necessary consumption tax rate increases. From around 2050, a consumption tax rate of 5% to 7% would have to be implemented.
- The reason why the consumption tax rate would need to be increased steeply after 2030 is that as the junior baby boom generation started retiring from the labor market, which would further push up the dependency ratio, contributions by the national treasury would eliminate the problem of non-contribution and non-subscription on the part of those obliged to enroll, creating a situation that is the same as a 100% paid-up situation. As a result, there would be more generations receiving a basic pension in full.

Paying Basic Pensions out of the National Treasury (Basic Pension Fund)





- If the yearly consumption tax rate necessary to cover the basic pension were to be leveled between FY2010 and FY2100, it would be approximately **4.8%** if a macro-economic slide was put into effect, and approximately **5.5%** if a macro-economic slide was not put into effect.
- The amount necessary for the reserve is estimated to be about the half level as that for current employees' pension system. If a fund of this size were to be collected, its influence on the capital market would be enormous.

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Integrating the Employees' Pension and National Pension Systems (Assumptions on This Simulation)

- The basic design of the new integrated pension is of a fully earnings-related pension system.
- As for the insurance rate, the same rate as that stipulated in the schedule for raising the employees' pension premiums would apply.
- If an individual's income-related benefit calculated as such failed to reach the level of the current basic pension, the individual would be eligible for a minimum-security pension separately from the earnings-related pension.
- All of the insured and recipients of the employees' pension are assumed to be switched over to the new system in 2010.
- On the other hand, of those insured by the national pension system only those born in 1970 and after are assumed to be switched over to the new system, with their contribution history up to 2009 discarded. The rest of those insured under the national pension system are assumed to be covered by the old system.
- Revenues and expenditures relating to the old system are also included in the revenues and expenditures of the integrated pension system. The national treasury burden relating to the benefits under the old system is assumed to be 50% as in the current system (for 2009 on), and is added to the national treasury burden relating to the minimum security pension.

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Integrating the Employees' Pension and National Pension Systems (Assumptions on This Simulation)

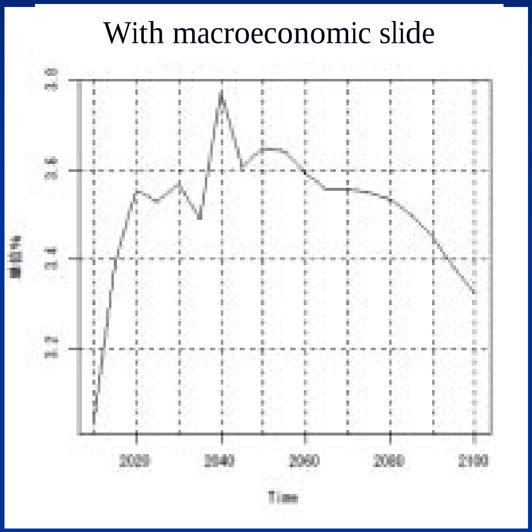
- The initial reserve fund for the new integrated pension system is assumed to be the total of the reserves (as estimated by the MHLW) of the employees' pension and national pension as of the end of 2009. On the other hand, as a terminal condition, the reserve as of the end of FY2100 is assumed to be the same as the expenditure for 2100.
- Economic preconditions are assumed to be equal to those in the standard case used in the recalculation of finances by the MHLW.
- The distribution of incomes of the Category-1 insured of the national pension was made using the data "Basic Survey on National Life (MHLW)" published in the FY2003.
- The income distribution of the employees' insured pension was taken from the distribution of the standard monthly wages of the recipients of retirement pensions of the employees' pension system published in the Social Insurance Agency Annual Report (FY2002).
- The ratio between the employees' pension Category-2 insured and the employees' pension Category-3 insured is assumed to be constant at 1 : 0.27. The incomes of the Category-3 insured are assumed to be distributed evenly between 0 (zero) yen and 85,000 yen monthly (1.02 million yen annually, standard monthly wage 65,380 yen) for the sake of simplicity.

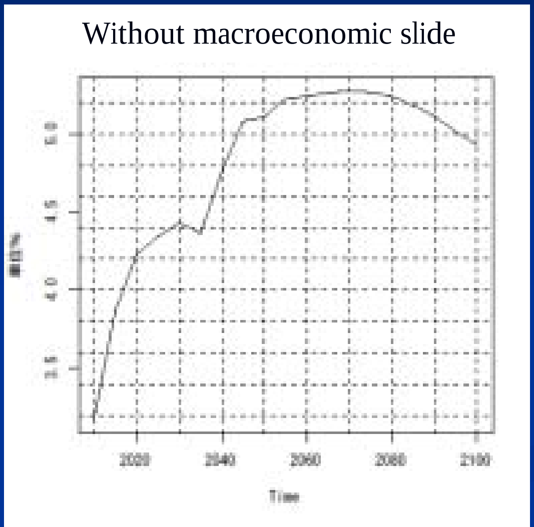
Integrating the Employees' Pension and National Pension Systems (Benefits and Contributions)

Birth year	With macroeconomic slide				Without macroeconomic slide			
	Benefit/ contribution ratio		Internal rate of return (%)		Benefit/ contribution ratio		Internal rate of return (%)	
	Male	Female	Male	Female	Male	Female	Male	Female
1945	1.199	1.502	3.875	4.593	1.109	1.404	3.583	4.354
1950	0.996	1.256	3.187	3.932	0.967	1.224	3.083	3.848
1955	0.833	1.054	2.593	3.362	0.823	1.042	2.550	3.325
1965	0.719	0.909	2.160	2.922	0.712	0.900	2.129	2.894
1975	0.660	0.843	1.925	2.720	0.654	0.835	1.895	2.692
1985	0.636	0.812	1.830	2.623	0.630	0.804	1.800	2.596
1995	0.615	0.786	1.756	2.544	0.609	0.778	1.727	2.518
2005	0.615	0.785	1.754	2.542	0.609	0.777	1.725	2.515

- Because the survivors' pension and disability pension are separated from the system, the profitability is high throughout all age groups.
- Benefit Multiplier is 11.522 (with macroeconomic slide) and 9.787 (without macroeconomic slide).

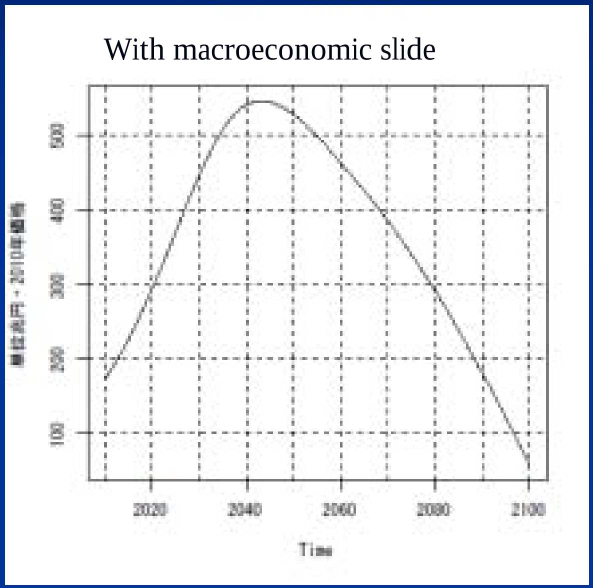
Consumption Tax Rate for Minimum Security Pension

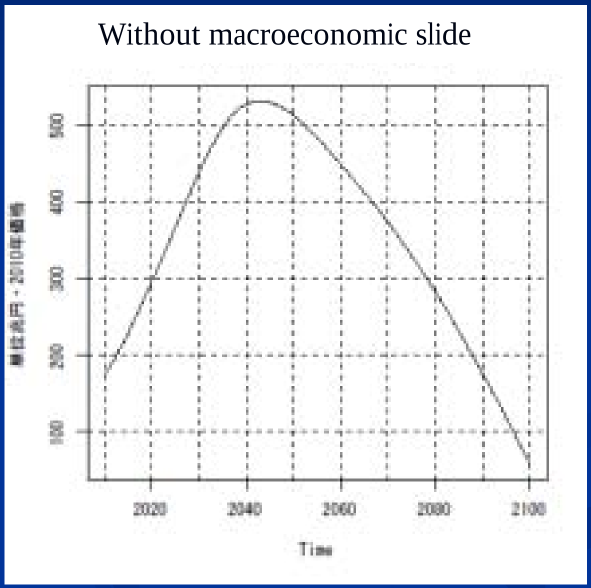




- The national treasury burden that compensates the minimum security pension and half of the national pension benefits during the transition period will be financed by national subsidy.
- The national treasury burden is large when the macro-economic slide is not put into effect because the basic pension level is high in this case.
- When the macro-economic slide is put into effect, a consumption tax rate of a maximum of 3.8% sufficiently covers the expenditure, but when it is not put into effect, the consumption tax rate has to be approximately 5.8%.

Reserve Fund

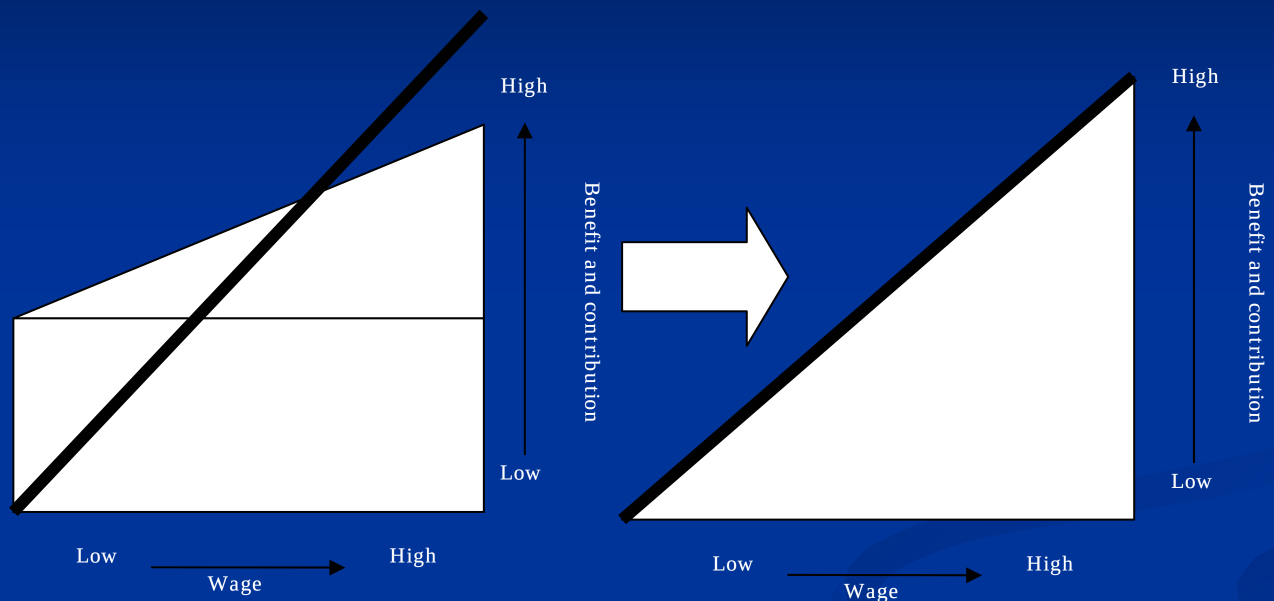




- By allowing national pension subscribers to switch over to the new integrated pension system based on income-related pensions, the ratio of the pension system to the economy grows significantly larger. Even when a macro-economic slide is put into effect, the necessary reserve will total more than 500 trillion yen. This is twice as large as the reserve balance projected under the current system, and it is forecast that the resulting influence imposed by the pension system on the capital market will be extremely large.

RIETI

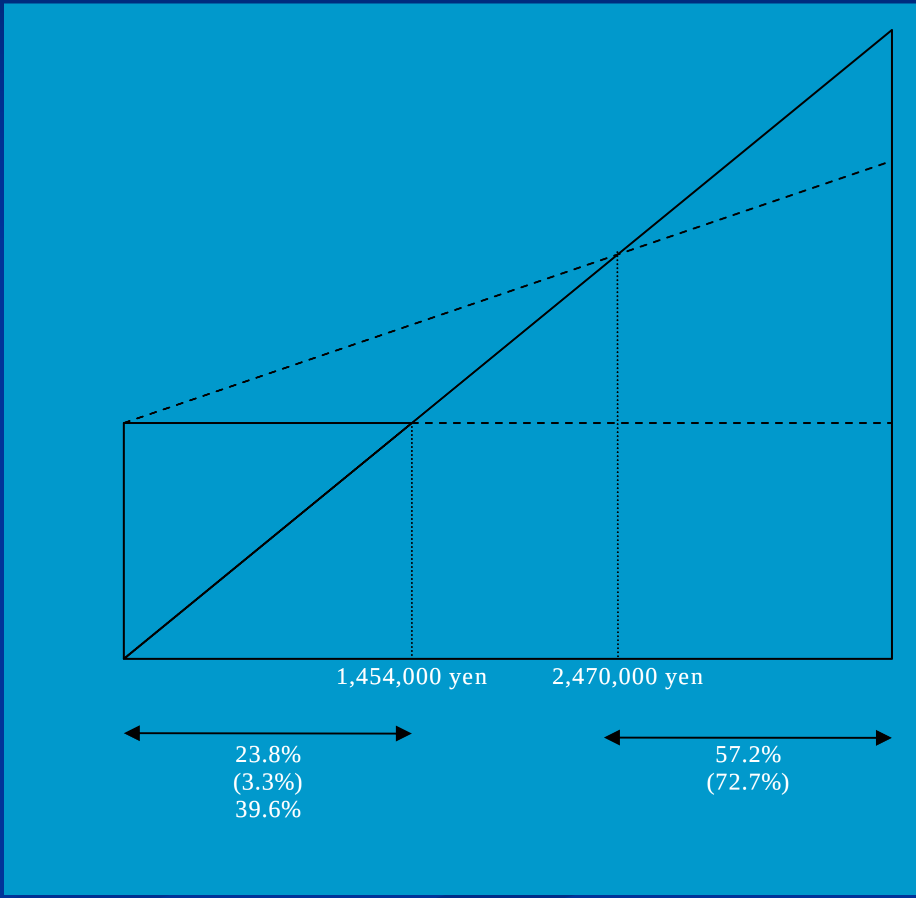
Connection between Benefits and Contributions



- Switching to the new integrated pension system would significantly alter the way benefits and contributions are balanced, compared with the way they are in the employees' pension and national pension.
- Under the current employees' pension system, there is a fixed-amount portion (the basic pension), and consequently the contribution level does not have a one-to-one correspondence with the benefit level.
- But if the system is reformed to one based on income-related pensions such as the new integrated pension system proposed in this article, the contribution level (thick line) has a one-to-one correspondence with the benefit level (thin line).

Connection between Benefits and Contributions (Comparison between the Current System and New Integrated Pension System)

- The benefit under the new integrated pension system becomes larger when the standard monthly wage (total-earnings base) is 274,000 yen or higher. The proportion of employees' pension subscribers who are receiving a standard monthly wage of 274,000 yen or higher is approximately 57.2%; the number reaches 72.7% if we exclude those insured under Category-3 of the employees' pension system.
- The standard monthly wage (total earnings) pertaining to the minimum-security pension is 145,400 yen. The proportion belonging to this group (employees' pension subscribers only) is 23.8%, or 3.3% if the employees' pension Category-3 insured group is excluded.
- The proportion of national pension subscribers who will be eligible for the minimum-security pension will be 39.6%.



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Summary

- Quantitative Evaluation on alternative pension system reform ideas that clarify the role-sharing of the insurance principle and the assistance principle using a pension simulation model (the RIETI model).

- If the basic pension is to be funded by the national treasury, as long as the premium level corresponding to the second-tier portion is maintained at the 2004-refom-based employees' pension premium level, a benefit multiplier of approximately 1.91 times of the current level can be set; while as long as the benefit level is maintained at the 2004-reform level, the premium rate corresponding to the second-tier portion can be lowered to approximately 11.93%. The consumption tax rate corresponding to the national treasury burden for the basic pension will have to be approximately 7% at maximum; while if the consumption tax burden is to be leveled, a level of reserve corresponding to half of the current employees' pension will be necessary.

- When integrating the current pension system into the new integrated pension system, the consumption tax rate corresponding to the national treasury burden can be relatively low compared with the above case. But in doing so the scale of the pension system itself increases significantly, requiring twice the level of reserves as the current system, leading us to conclude that introducing this system necessitates consideration of its influence on the capital market. We have also shown quantitatively that switching from one system to another would significantly alter the relationship between benefits and burdens, and that while some income layers would enjoy higher profitability as a result of the introduction of the new system, other income layers would suffer a decline in profitability.

Remaining Issues

- The integration of the mutual-aid pension and the employees' pension

- the direction in which the relationship between lifetime contributions and burden turns is not determined transcendentally. How lifetime disposable income changes when both the tax burden (for the national treasury burden) and the benefit increases, or when the tax burden increases but the premium burden decreases need to be estimated from the viewpoint of generational accounting.

Thank You !

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